

SEQUENCE LISTING

5 <110> Chiari, Rita
Coulie, Pierre
Boon-Falleur, Thierry

<120> TYROSINE KINASE RECEPTOR EphA3 ANTIGENIC PEPTIDES

10 <130> L0461/7121

<140> US 09/913,756
<141> 2000-02-18

15 <150> US 60/121,170
<151> 1999-02-22

<150> US 60/158,566
<151> 1999-10-08

20 <160> 63

<170> FastSEQ for Windows Version 3.0

25 <210> 1
<211> 43
<212> DNA
<213> Artificial sequence

30 <220>
<221> primer_bind
<222> 1..43
<223> synthetic oligo(dT) primer

35 <220>
<221> unsure
<222> 43..43
<223> n = a, c, g or t

40 <400> 1
ataagaatgc ggccgctaaa ctatTTTTTT tTTTTTTTT tvn 43

45 <210> 2
<211> 3149
<212> DNA
<213> Homo sapiens

50 <220>
<221> CDS
<222> 101..3052

<400> 2
ccatggatgg taacttctcc agcaatcaga ggcgtccccc tcacatcagt ggcattgttc 60
55 atggagatat gctcctctca ctgccctctg caccagcaac atg gat tgt cag ctc 115
Met Asp Cys Gln Leu
1 5

60 tcc atc ctc ctc ctt ctc agc tgc tct gtt ctc gac agc ttc ggg gaa 163
Ser Ile Leu Leu Leu Leu Ser Cys Ser Val Leu Asp Ser Phe Gly Glu

| | 10 | 15 | 20 | |
|----|--|--|-----|-----|
| 5 | ctg att ccg cag cct tcc aat gaa gtc Leu Ile Pro Gln Pro Ser Asn Glu Val | aat cta ctg gat tca aaa aca Asn Leu Leu Asp Ser Lys Thr | 211 | |
| | 25 | 30 | 35 | |
| 10 | att caa ggg gag ctg ggc tgg atc tct tat cca tca cat ggg tgg gaa Ile Gln Gly Glu Leu Gly Trp Ile Ser Tyr Pro Ser His Gly Trp Glu | 259 | | |
| | 40 | 45 | 50 | |
| 15 | gag atc agt ggt gtg gat gaa cat tac aca ccc atc agg act tac cag Glu Ile Ser Gly Val Asp Glu His Tyr Thr Pro Ile Arg Thr Tyr Gln | 307 | | |
| | 55 | 60 | 65 | |
| 20 | gtg tgc aat gtc atg gac cac agt caa aac aat tgg ctg aga aca aac Val Cys Asn Val Met Asp His Ser Gln Asn Asn Trp Leu Arg Thr Asn | 355 | | |
| | 70 | 75 | 80 | 85 |
| 25 | tgg gtc ccc agg aac tca gct cag aag att tat gtg gag ctc aag ttc Trp Val Pro Arg Asn Ser Ala Gln Lys Ile Tyr Val Glu Leu Lys Phe | 403 | | |
| | 90 | 95 | 100 | |
| 30 | act cta cga gac tgc aat agc att cca ttg gtt tta gga act tgc aag Thr Leu Arg Asp Cys Asn Ser Ile Pro Leu Val Leu Gly Thr Cys Lys | 451 | | |
| | 105 | 110 | 115 | |
| 35 | gag aca ttc aac ctg tac tac atg gag tct gat gat gat cat ggg gtg Glu Thr Phe Asn Leu Tyr Tyr Met Glu Ser Asp Asp Asp His Gly Val | 499 | | |
| | 120 | 125 | 130 | |
| 40 | aaa ttt cga gag cat cag ttt aca aag att gac acc att gca gct gat Lys Phe Arg Glu His Gln Phe Thr Lys Ile Asp Thr Ile Ala Ala Asp | 547 | | |
| | 135 | 140 | 145 | |
| 45 | gaa agt ttc act caa atg gat ctt ggg gac cgt att ctg aag ctc aac Glu Ser Phe Thr Gln Met Asp Leu Gly Asp Arg Ile Leu Lys Leu Asn | 595 | | |
| | 150 | 155 | 160 | 165 |
| 50 | act gag att aga gaa gta ggt cct gtc aac aag aag gga ttt tat ttg Thr Glu Ile Arg Glu Val Gly Pro Val Asn Lys Lys Gly Phe Tyr Leu | 643 | | |
| | 170 | 175 | 180 | |
| 55 | gca ttt caa gat gtt ggt gct tgt gtt gcc ttg gtg tct gtg aga gta Ala Phe Gln Asp Val Gly Ala Cys Val Ala Leu Val Ser Val Arg Val | 691 | | |
| | 185 | 190 | 195 | |
| 60 | tac ttc aaa aag tgc cca ttt aca gtg aag aat ctg gct atg ttt cca Tyr Phe Lys Lys Cys Pro Phe Thr Val Lys Asn Leu Ala Met Phe Pro | 739 | | |
| | 200 | 205 | 210 | |
| 65 | gac acg gta ccc atg gac tcc cag tcc ctg gtg gag gtt aga ggg tct Asp Thr Val Pro Met Asp Ser Gln Ser Leu Val Glu Val Arg Gly Ser | 787 | | |
| | 215 | 220 | 225 | |
| 70 | tgt gtc aac aat tct aag gag gaa gat cct cca agg atg tac tgc agt Cys Val Asn Asn Ser Lys Glu Glu Asp Pro Pro Arg Met Tyr Cys Ser | 835 | | |
| | 230 | 235 | 240 | 245 |
| 75 | aca gaa ggc gaa tgg ctt gta ccc att ggc aag tgt tcc tgc aat gct Thr Glu Gly Glu Trp Leu Val Pro Ile Gly Lys Cys Ser Cys Asn Ala | 883 | | |

| | 250 | | | | | | | | 255 | | | | | | | | 260 | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|--|--|--|--|-----|--|
| 5 | ggc | tat | gaa | gaa | aga | ggt | ttt | atg | tgc | caa | gct | tgt | cga | cca | ggt | ttc | 931 | | | | | | | | | |
| | Gly | Tyr | Glu | Glu | Arg | Gly | Phe | Met | Cys | Gln | Ala | Cys | Arg | Pro | Gly | Phe | | | | | | | | | | |
| | 265 | | | | | | | | 270 | | | | | | | | 275 | | | | | | | | | |
| 10 | tac | aag | gca | ttg | gat | ggt | aat | atg | aag | tgt | gct | aag | tgc | ccg | cct | cac | 979 | | | | | | | | | |
| | Tyr | Lys | Ala | Leu | Asp | Gly | Asn | Met | Lys | Cys | Ala | Lys | Cys | Pro | Pro | His | | | | | | | | | | |
| | 280 | | | | | | | | 285 | | | | | | | | 290 | | | | | | | | | |
| 15 | agt | tct | act | cag | gaa | gat | ggt | tca | atg | aac | tgc | agg | tgt | gag | aat | aat | 1027 | | | | | | | | | |
| | Ser | Ser | Thr | Gln | Glu | Asp | Gly | Ser | Met | Asn | Cys | Arg | Cys | Glu | Asn | Asn | | | | | | | | | | |
| | 295 | | | | | | | | 300 | | | | | | | | 305 | | | | | | | | | |
| 20 | tac | ttc | cgg | gca | gac | aaa | gac | cct | cca | tcc | atg | gct | tgt | acc | cga | cct | 1075 | | | | | | | | | |
| | Tyr | Phe | Arg | Ala | Asp | Lys | Asp | Pro | Pro | Ser | Met | Ala | Cys | Thr | Arg | Pro | | | | | | | | | | |
| | 310 | | | | | | | | 315 | | | | | | | | 320 | | | | | | | | 325 | |
| 25 | cca | tct | tca | cca | aga | aat | gtt | atc | tct | aat | ata | aac | gag | acc | tca | gtt | 1123 | | | | | | | | | |
| | Pro | Ser | Ser | Pro | Arg | Asn | Val | Ile | Ser | Asn | Ile | Asn | Glu | Thr | Ser | Val | | | | | | | | | | |
| | 330 | | | | | | | | 335 | | | | | | | | 340 | | | | | | | | | |
| 30 | atc | ctg | gac | tgg | agt | tgg | ccc | ctg | gac | aca | gga | ggc | cgg | aaa | gat | gtt | 1171 | | | | | | | | | |
| | Ile | Leu | Asp | Trp | Ser | Trp | Pro | Leu | Asp | Thr | Gly | Gly | Arg | Lys | Asp | Val | | | | | | | | | | |
| | 345 | | | | | | | | 350 | | | | | | | | 355 | | | | | | | | | |
| 35 | acc | ttc | aac | atc | ata | tgt | aaa | aaa | tgt | ggg | tgg | aat | ata | aaa | cag | tgt | 1219 | | | | | | | | | |
| | Thr | Phe | Asn | Ile | Ile | Cys | Lys | Lys | Cys | Gly | Trp | Asn | Ile | Lys | Gln | Cys | | | | | | | | | | |
| | 360 | | | | | | | | 365 | | | | | | | | 370 | | | | | | | | | |
| 40 | gag | cca | tgc | agc | cca | aat | gtc | cgc | ttc | ctc | cct | cga | cag | ttt | gga | ctc | 1267 | | | | | | | | | |
| | Glu | Pro | Cys | Ser | Pro | Asn | Val | Arg | Phe | Leu | Pro | Arg | Gln | Phe | Gly | Leu | | | | | | | | | | |
| | 375 | | | | | | | | 380 | | | | | | | | 385 | | | | | | | | | |
| 45 | acc | aac | acc | acg | gtg | aca | gtg | aca | gac | ctt | ctg | gca | cat | act | aac | tac | 1315 | | | | | | | | | |
| | Thr | Asn | Thr | Thr | Val | Thr | Val | Thr | Asp | Leu | Leu | Ala | His | Thr | Asn | Tyr | | | | | | | | | | |
| | 390 | | | | | | | | 395 | | | | | | | | 400 | | | | | | | | 405 | |
| 50 | acc | ttt | gag | att | gat | gcc | gtt | aat | ggg | gtg | tca | gag | ctg | agc | tcc | cca | 1363 | | | | | | | | | |
| | Thr | Phe | Glu | Ile | Asp | Ala | Val | Asn | Gly | Val | Ser | Glu | Leu | Ser | Ser | Pro | | | | | | | | | | |
| | 410 | | | | | | | | 415 | | | | | | | | 420 | | | | | | | | | |
| 55 | cca | aga | cag | ttt | gct | gcg | gtc | agc | atc | aca | act | aat | cag | gct | gct | cca | 1411 | | | | | | | | | |
| | Pro | Arg | Gln | Phe | Ala | Ala | Val | Ser | Ile | Thr | Thr | Asn | Gln | Ala | Ala | Pro | | | | | | | | | | |
| | 425 | | | | | | | | 430 | | | | | | | | 435 | | | | | | | | | |
| 60 | tca | cct | gtc | ctg | acg | att | aag | aaa | gat | cgg | acc | tcc | aga | aat | agc | atc | 1459 | | | | | | | | | |
| | Ser | Pro | Val | Leu | Thr | Ile | Lys | Lys | Asp | Arg | Thr | Ser | Arg | Asn | Ser | Ile | | | | | | | | | | |
| | 440 | | | | | | | | 445 | | | | | | | | 450 | | | | | | | | | |
| 65 | tct | ttg | tcc | tgg | caa | gaa | cct | gaa | cat | cct | aat | ggg | atc | ata | ttg | gac | 1507 | | | | | | | | | |
| | Ser | Leu | Ser | Trp | Gln | Glu | Pro | Glu | His | Pro | Asn | Gly | Ile | Ile | Leu | Asp | | | | | | | | | | |
| | 455 | | | | | | | | 460 | | | | | | | | 465 | | | | | | | | | |
| 70 | tac | gag | gtc | aaa | tac | tat | gaa | aag | cag | gaa | caa | gaa | aca | agt | tat | acc | 1555 | | | | | | | | | |
| | Tyr | Glu | Val | Lys | Tyr | Tyr | Glu | Lys | Gln | Glu | Gln | Glu | Thr | Ser | Tyr | Thr | | | | | | | | | | |
| | 470 | | | | | | | | 475 | | | | | | | | 480 | | | | | | | | 485 | |
| 75 | att | ctg | agg | gca | aga | ggc | aca | aat | gtt | acc | atc | agt | agc | ctc | aag | cct | 1603 | | | | | | | | | |
| | Ile | Leu | Arg | Ala | Arg | Gly | Thr | Asn | Val | Thr | Ile | Ser | Ser | Leu | Lys | Pro | | | | | | | | | | |

| | 490 | 495 | 500 | |
|----|---|------|-----|--|
| 5 | gac act ata tac gta ttc caa atc cga gcc cga aca gcc gct gga tat Asp Thr Ile Tyr Val Phe Gln Ile Arg Ala Arg Thr Ala Ala Gly Tyr 505 510 515 | 1651 | | |
| 10 | ggg acg aac agc cgc aag ttt gag ttt gaa act agt cca gac tct ttc Gly Thr Asn Ser Arg Lys Phe Glu Phe Glu Thr Ser Pro Asp Ser Phe 520 525 530 | 1699 | | |
| 15 | tcc atc tct ggt gaa agt agc caa gtg gtc atg atc gcc att tca gcg Ser Ile Ser Gly Glu Ser Ser Gln Val Val Met Ile Ala Ile Ser Ala 535 540 545 | 1747 | | |
| 20 | gca gta gca att att ctc ctc act gtt gtc atc tat gtt ttg att ggg Ala Val Ala Ile Ile Leu Leu Thr Val Val Ile Tyr Val Leu Ile Gly 550 555 560 565 | 1795 | | |
| 25 | agg ttc tgt ggc tat aag tca aaa cat ggg gca gat gaa aaa aga ctt Arg Phe Cys Gly Tyr Lys Ser Lys His Gly Ala Asp Glu Lys Arg Leu 570 575 580 | 1843 | | |
| 30 | cat ttt ggc aat ggg cat tta aaa ctt cca ggt ctc agg act tat gtt His Phe Gly Asn Gly His Leu Lys Leu Pro Gly Leu Arg Thr Tyr Val 585 590 595 | 1891 | | |
| 35 | gac cca cat aca tat gaa gac cct acc caa gct gtt cat gag ttt gcc Asp Pro His Thr Tyr Glu Asp Pro Thr Gln Ala Val His Glu Phe Ala 600 605 610 | 1939 | | |
| 40 | aag gaa ttg gat gcc acc aac ata tcc att gat aaa gtt gtt gga gca Lys Glu Leu Asp Ala Thr Asn Ile Ser Ile Asp Lys Val Val Gly Ala 615 620 625 | 1987 | | |
| 45 | ggg gaa ttt gga gag gtg tgc agt ggt cgc tta aaa ctt cct tca aaa Gly Glu Phe Gly Glu Val Cys Ser Gly Arg Leu Lys Leu Pro Ser Lys 630 635 640 645 | 2035 | | |
| 50 | aaa gag att tca gtg gcc att aaa acc ctg aaa gtt ggc tac aca gaa Lys Glu Ile Ser Val Ala Ile Lys Thr Leu Lys Val Gly Tyr Thr Glu 650 655 660 | 2083 | | |
| 55 | aag cag agg aga gac ttc ctg gga gaa gca agc att atg gga cag ttt Lys Gln Arg Arg Asp Phe Leu Gly Glu Ala Ser Ile Met Gly Gln Phe 665 670 675 | 2131 | | |
| 60 | gac cac ccc aat atc att cga ctg gaa gga gtt gtt acc aaa agt aag Asp His Pro Asn Ile Ile Arg Leu Glu Gly Val Val Thr Lys Ser Lys 680 685 690 | 2179 | | |
| 65 | cca gtt atg att gtc aca gaa tac atg gag aat ggt tcc ttg gat agt Pro Val Met Ile Val Thr Glu Tyr Met Glu Asn Gly Ser Leu Asp Ser 695 700 705 | 2227 | | |
| 70 | ttc cta cgt aaa cac gat gcc cag ttt act gtc att cag cta gtg ggg Phe Leu Arg Lys His Asp Ala Gln Phe Thr Val Ile Gln Leu Val Gly 710 715 720 725 | 2275 | | |
| 75 | atg ctt cga ggg ata gca tct ggc atg aag tac ctg tca gac atg ggc Met Leu Arg Gly Ile Ala Ser Gly Met Lys Tyr Leu Ser Asp Met Gly 730 735 740 745 | 2323 | | |

| | 730 | | | | | | | | 735 | | | | 740 | | | | | |
|----|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|-----|
| 5 | tat Tyr | gtt Val | cac His | cga Arg | gac Asp | ctc Leu | gct Ala | gct Ala | cgg Arg | aac Asn | atc Ile | ttg Leu | atc Ile | aac Asn | agt Ser | aac Asn | 2371 | |
| | 745 | | | | | | | | 750 | | | | 755 | | | | | |
| 10 | ttg Leu | gtg Val | tgt Cys | aag Lys | gtt Val | tct Ser | gat Asp | ttc Phe | gga Gly | ctt Leu | tcg Ser | cgt Arg | gtc Val | ctg Leu | gag Glu | gat Asp | 2419 | |
| | 760 | | | | | | | | 765 | | | | 770 | | | | | |
| 15 | gac Asp | cca Pro | gaa Glu | gct Ala | gct Ala | tat Tyr | aca Thr | aca Thr | aga Arg | gga Gly | ggg Gly | aag Lys | atc Ile | cca Pro | atc Ile | agg Arg | 2467 | |
| | 775 | | | | | | | | 780 | | | | 785 | | | | | |
| 20 | tgg Trp | aca Thr | tca Ser | cca Pro | gaa Glu | gct Ala | ata Ile | gcc Ala | tac Tyr | cgc Arg | aag Lys | ttc Phe | acg Thr | tca Ser | gcc Ala | agc Ser | 2515 | |
| | 790 | | | | | | | | 795 | | | | 800 | | | | | 805 |
| 25 | gat Asp | gta Val | tgg Trp | agt Ser | tat Tyr | ggg Gly | att Ile | gtt Val | ctc Leu | tgg Trp | gag Glu | gtg Val | atg Met | tct Ser | tat Tyr | gga Gly | 2563 | |
| | 810 | | | | | | | | 815 | | | | 820 | | | | | |
| 30 | gag Glu | aga Arg | cca Pro | tac Tyr | tgg Trp | gag Glu | atg Met | tcc Ser | aat Asn | cag Gln | gat Asp | gta Val | att Ile | aaa Lys | gct Ala | gta Val | 2611 | |
| | 825 | | | | | | | | 830 | | | | 835 | | | | | |
| 35 | gat Asp | gag Glu | ggc Gly | tat Tyr | cga Arg | ctg Leu | cca Pro | ccc Pro | ccc Pro | atg Met | gac Asp | tgc Cys | cca Pro | gct Ala | gcc Ala | ttg Leu | 2659 | |
| | 840 | | | | | | | | 845 | | | | 850 | | | | | |
| 40 | tat Tyr | cag Gln | ctg Leu | atg Met | ctg Leu | gac Asp | tgc Cys | tgg Trp | cag Gln | aaa Lys | gac Asp | agg Arg | aac Asn | aac Asn | aga Arg | ccc Pro | 2707 | |
| | 855 | | | | | | | | 860 | | | | 865 | | | | | |
| 45 | aag Lys | ttt Phe | gag Glu | cag Gln | att Ile | gtt Val | agt Ser | att Ile | ctg Leu | gac Asp | aag Lys | ctt Leu | atc Ile | cgg Arg | aat Asn | ccc Pro | 2755 | |
| | 870 | | | | | | | | 875 | | | | 880 | | | | | 885 |
| 50 | ggc Gly | agc Ser | ctg Leu | aag Lys | atc Ile | atc Ile | acc Thr | agt Ser | gca Ala | gcc Ala | gca Ala | agg Arg | cca Pro | tca Ser | aac Asn | ctt Leu | 2803 | |
| | 890 | | | | | | | | 895 | | | | 900 | | | | | |
| 55 | ctt Leu | ctg Leu | gac Asp | caa Gln | agc Ser | aat Asn | gtg Val | gat Asp | atc Ile | tct Ser | acc Thr | ttc Phe | cgc Arg | aca Thr | aca Thr | ggt Gly | 2851 | |
| | 905 | | | | | | | | 910 | | | | 915 | | | | | |
| 60 | gac Asp | tgg Trp | ctt Leu | aat Asn | ggt Gly | gtc Val | cgg Arg | aca Thr | gca Ala | cac His | tgc Cys | aag Lys | gaa Glu | atc Ile | ttc Phe | acg Thr | 2899 | |
| | 920 | | | | | | | | 925 | | | | 930 | | | | | |
| 65 | ggc Gly | gtg Val | gag Glu | tac Tyr | agt Ser | tct Ser | tgt Cys | gac Asp | aca Thr | ata Ile | gcc Ala | aag Lys | att Ile | tcc Ser | aca Thr | gat Asp | 2947 | |
| | 935 | | | | | | | | 940 | | | | 945 | | | | | |
| 70 | gac Asp | atg Met | aaa Lys | aag Lys | gtt Val | ggt Gly | gtc Val | acc Thr | gtg Val | gtt Val | ggg Gly | cca Pro | cag Gln | aag Lys | aag Lys | atc Ile | 2995 | |
| | 950 | | | | | | | | 955 | | | | 960 | | | | | 965 |
| 75 | atc Ile | agt Ser | agc Ser | att Ile | aaa Lys | gct Ala | cta Leu | gaa Glu | acg Thr | caa Gln | tca Ser | aag Lys | aat Asn | ggc Gly | cca Pro | gtt Val | 3043 | |

970

975

980

ccc gtg taa agcagcagcg aagtgttct ggacggaagt ggtggctgtg
Pro Val

3092

5

gaaggcgtca agtcattctg cagacagaca ataattctgg agatactggt ggaagtt

3149

<210> 3

10 <211> 983

<212> PRT

<213> Homo sapiens

<400> 3

15 Met Asp Cys Gln Leu Ser Ile Leu Leu Leu Leu Ser Cys Ser Val Leu
1 5 10 15
Asp Ser Phe Gly Glu Leu Ile Pro Gln Pro Ser Asn Glu Val Asn Leu
20 20 25 30
Leu Asp Ser Lys Thr Ile Gln Gly Glu Leu Gly Trp Ile Ser Tyr Pro
20 35 40 45
Ser His Gly Trp Glu Glu Ile Ser Gly Val Asp Glu His Tyr Thr Pro
50 55 60
Ile Arg Thr Tyr Gln Val Cys Asn Val Met Asp His Ser Gln Asn Asn
65 70 75 80
25 Trp Leu Arg Thr Asn Trp Val Pro Arg Asn Ser Ala Gln Lys Ile Tyr
85 90 95
Val Glu Leu Lys Phe Thr Leu Arg Asp Cys Asn Ser Ile Pro Leu Val
100 105 110
Leu Gly Thr Cys Lys Glu Thr Phe Asn Leu Tyr Tyr Met Glu Ser Asp
30 115 120 125
Asp Asp His Gly Val Lys Phe Arg Glu His Gln Phe Thr Lys Ile Asp
130 135 140
Thr Ile Ala Ala Asp Glu Ser Phe Thr Gln Met Asp Leu Gly Asp Arg
145 150 155 160
35 Ile Leu Lys Leu Asn Thr Glu Ile Arg Glu Val Gly Pro Val Asn Lys
165 170 175
Lys Gly Phe Tyr Leu Ala Phe Gln Asp Val Gly Ala Cys Val Ala Leu
180 185 190
Val Ser Val Arg Val Tyr Phe Lys Lys Cys Pro Phe Thr Val Lys Asn
40 195 200 205
Leu Ala Met Phe Pro Asp Thr Val Pro Met Asp Ser Gln Ser Leu Val
210 215 220
Glu Val Arg Gly Ser Cys Val Asn Asn Ser Lys Glu Glu Asp Pro Pro
225 230 235 240
45 Arg Met Tyr Cys Ser Thr Glu Gly Glu Trp Leu Val Pro Ile Gly Lys
245 250 255
Cys Ser Cys Asn Ala Gly Tyr Glu Glu Arg Gly Phe Met Cys Gln Ala
260 265 270
Cys Arg Pro Gly Phe Tyr Lys Ala Leu Asp Gly Asn Met Lys Cys Ala
50 275 280 285
Lys Cys Pro Pro His Ser Ser Thr Gln Glu Asp Gly Ser Met Asn Cys
290 295 300
Arg Cys Glu Asn Asn Tyr Phe Arg Ala Asp Lys Asp Pro Pro Ser Met
305 310 315 320
55 Ala Cys Thr Arg Pro Pro Ser Ser Pro Arg Asn Val Ile Ser Asn Ile
325 330 335
Asn Glu Thr Ser Val Ile Leu Asp Trp Ser Trp Pro Leu Asp Thr Gly
340 345 350
Gly Arg Lys Asp Val Thr Phe Asn Ile Ile Cys Lys Lys Cys Gly Trp
60 355 360 365

| | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Asn | Ile | Lys | Gln | Cys | Glu | Pro | Cys | Ser | Pro | Asn | Val | Arg | Phe | Leu | Pro |
| | 370 | | | | | | 375 | | | | 380 | | | | | |
| | Arg | Gln | Phe | Gly | Leu | Thr | Asn | Thr | Thr | Val | Thr | Val | Thr | Asp | Leu | Leu |
| | 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| 5 | Ala | His | Thr | Asn | Tyr | Thr | Phe | Glu | Ile | Asp | Ala | Val | Asn | Gly | Val | Ser |
| | | | | 405 | | | | | | 410 | | | | | 415 | |
| | Glu | Leu | Ser | Ser | Pro | Pro | Arg | Gln | Phe | Ala | Ala | Val | Ser | Ile | Thr | Thr |
| | | | | 420 | | | | | 425 | | | | | | 430 | |
| 10 | Asn | Gln | Ala | Ala | Pro | Ser | Pro | Val | Leu | Thr | Ile | Lys | Lys | Asp | Arg | Thr |
| | | 435 | | | | | | 440 | | | | | | 445 | | |
| | Ser | Arg | Asn | Ser | Ile | Ser | Leu | Ser | Trp | Gln | Glu | Pro | Glu | His | Pro | Asn |
| | | 450 | | | | | 455 | | | | | 460 | | | | |
| | Gly | Ile | Ile | Leu | Asp | Tyr | Glu | Val | Lys | Tyr | Tyr | Glu | Lys | Gln | Glu | Gln |
| | 465 | | | | 470 | | | | | | 475 | | | | | 480 |
| 15 | Glu | Thr | Ser | Tyr | Thr | Ile | Leu | Arg | Ala | Arg | Gly | Thr | Asn | Val | Thr | Ile |
| | | | | | 485 | | | | | 490 | | | | | 495 | |
| | Ser | Ser | Leu | Lys | Pro | Asp | Thr | Ile | Tyr | Val | Phe | Gln | Ile | Arg | Ala | Arg |
| | | | | 500 | | | | | 505 | | | | | 510 | | |
| 20 | Thr | Ala | Ala | Gly | Tyr | Gly | Thr | Asn | Ser | Arg | Lys | Phe | Glu | Phe | Glu | Thr |
| | | | 515 | | | | | 520 | | | | | 525 | | | |
| | Ser | Pro | Asp | Ser | Phe | Ser | Ile | Ser | Gly | Glu | Ser | Ser | Gln | Val | Val | Met |
| | | 530 | | | | | 535 | | | | | 540 | | | | |
| | Ile | Ala | Ile | Ser | Ala | Ala | Val | Ala | Ile | Ile | Leu | Leu | Thr | Val | Val | Ile |
| | 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| 25 | Tyr | Val | Leu | Ile | Gly | Arg | Phe | Cys | Gly | Tyr | Lys | Ser | Lys | His | Gly | Ala |
| | | | | | 565 | | | | | 570 | | | | | 575 | |
| | Asp | Glu | Lys | Arg | Leu | His | Phe | Gly | Asn | Gly | His | Leu | Lys | Leu | Pro | Gly |
| | | | | 580 | | | | | 585 | | | | | 590 | | |
| 30 | Leu | Arg | Thr | Tyr | Val | Asp | Pro | His | Thr | Tyr | Glu | Asp | Pro | Thr | Gln | Ala |
| | | | 595 | | | | | 600 | | | | | 605 | | | |
| | Val | His | Glu | Phe | Ala | Lys | Glu | Leu | Asp | Ala | Thr | Asn | Ile | Ser | Ile | Asp |
| | | 610 | | | | | 615 | | | | | 620 | | | | |
| | Lys | Val | Val | Gly | Ala | Gly | Glu | Phe | Gly | Glu | Val | Cys | Ser | Gly | Arg | Leu |
| | 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| 35 | Lys | Leu | Pro | Ser | Lys | Lys | Glu | Ile | Ser | Val | Ala | Ile | Lys | Thr | Leu | Lys |
| | | | | | 645 | | | | | 650 | | | | | 655 | |
| | Val | Gly | Tyr | Thr | Glu | Lys | Gln | Arg | Arg | Asp | Phe | Leu | Gly | Glu | Ala | Ser |
| | | | | 660 | | | | | 665 | | | | | 670 | | |
| 40 | Ile | Met | Gly | Gln | Phe | Asp | His | Pro | Asn | Ile | Ile | Arg | Leu | Glu | Gly | Val |
| | | 675 | | | | | | 680 | | | | | 685 | | | |
| | Val | Thr | Lys | Ser | Lys | Pro | Val | Met | Ile | Val | Thr | Glu | Tyr | Met | Glu | Asn |
| | | 690 | | | | | 695 | | | | | 700 | | | | |
| | Gly | Ser | Leu | Asp | Ser | Phe | Leu | Arg | Lys | His | Asp | Ala | Gln | Phe | Thr | Val |
| | 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| 45 | Ile | Gln | Leu | Val | Gly | Met | Leu | Arg | Gly | Ile | Ala | Ser | Gly | Met | Lys | Tyr |
| | | | | | 725 | | | | | 730 | | | | | 735 | |
| | Leu | Ser | Asp | Met | Gly | Tyr | Val | His | Arg | Asp | Leu | Ala | Ala | Arg | Asn | Ile |
| | | | | 740 | | | | | 745 | | | | | 750 | | |
| 50 | Leu | Ile | Asn | Ser | Asn | Leu | Val | Cys | Lys | Val | Ser | Asp | Phe | Gly | Leu | Ser |
| | | 755 | | | | | | 760 | | | | | 765 | | | |
| | Arg | Val | Leu | Glu | Asp | Asp | Pro | Glu | Ala | Ala | Tyr | Thr | Thr | Arg | Gly | Gly |
| | | 770 | | | | | 775 | | | | | 780 | | | | |
| | Lys | Ile | Pro | Ile | Arg | Trp | Thr | Ser | Pro | Glu | Ala | Ile | Ala | Tyr | Arg | Lys |
| | 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| 55 | Phe | Thr | Ser | Ala | Ser | Asp | Val | Trp | Ser | Tyr | Gly | Ile | Val | Leu | Trp | Glu |
| | | | | | 805 | | | | | 810 | | | | | 815 | |
| | Val | Met | Ser | Tyr | Gly | Glu | Arg | Pro | Tyr | Trp | Glu | Met | Ser | Asn | Gln | Asp |
| | | | | 820 | | | | | 825 | | | | | 830 | | |
| 60 | Val | Ile | Lys | Ala | Val | Asp | Glu | Gly | Tyr | Arg | Leu | Pro | Pro | Pro | Met | Asp |
| | | | 835 | | | | | 840 | | | | | | 845 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-------|--------------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|
| | Cys | Pro | Ala | Ala | Leu | Tyr | Gln | Leu | Met | Leu | Asp | Cys | Trp | Gln | Lys | Asp | | | | | | | | | |
| | 850 | | | | | | 855 | | | | | 860 | | | | | | | | | | | | | |
| | Arg | Asn | Asn | Arg | Pro | Lys | Phe | Glu | Gln | Ile | Val | Ser | Ile | Leu | Asp | Lys | | | | | | | | | |
| | 865 | | | | | 870 | | | | | 875 | | | | | 880 | | | | | | | | | |
| 5 | Leu | Ile | Arg | Asn | Pro | Gly | Ser | Leu | Lys | Ile | Ile | Thr | Ser | Ala | Ala | Ala | | | | | | | | | |
| | | | | 885 | | | | | 890 | | | | | | 895 | | | | | | | | | | |
| | Arg | Pro | Ser | Asn | Leu | Leu | Leu | Asp | Gln | Ser | Asn | Val | Asp | Ile | Ser | Thr | | | | | | | | | |
| | | | | 900 | | | | | 905 | | | | | 910 | | | | | | | | | | | |
| 10 | Phe | Arg | Thr | Thr | Gly | Asp | Trp | Leu | Asn | Gly | Val | Arg | Thr | Ala | His | Cys | | | | | | | | | |
| | | | 915 | | | | | 920 | | | | | 925 | | | | | | | | | | | | |
| | Lys | Glu | Ile | Phe | Thr | Gly | Val | Glu | Tyr | Ser | Ser | Cys | Asp | Thr | Ile | Ala | | | | | | | | | |
| | | 930 | | | | 935 | | | | | | 940 | | | | | | | | | | | | | |
| | Lys | Ile | Ser | Thr | Asp | Asp | Met | Lys | Lys | Val | Gly | Val | Thr | Val | Val | Gly | | | | | | | | | |
| | 945 | | | | 950 | | | | | | 955 | | | | | 960 | | | | | | | | | |
| 15 | Pro | Gln | Lys | Lys | Ile | Ile | Ser | Ser | Ile | Lys | Ala | Leu | Glu | Thr | Gln | Ser | | | | | | | | | |
| | | | | 965 | | | | | | 970 | | | | | 975 | | | | | | | | | | |
| | Lys | Asn | Gly | Pro | Val | Pro | Val | | | | | | | | | | | | | | | | | | |
| | | | | 980 | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | <210> | 4 | | | | | | | | | | | | | | | | | | | | |
| | | | | <211> | 3300 | | | | | | | | | | | | | | | | | | | | |
| | | | | <212> | DNA | | | | | | | | | | | | | | | | | | | | |
| | | | | <213> | Homo sapiens | | | | | | | | | | | | | | | | | | | | |
| 25 | | | | <220> | | | | | | | | | | | | | | | | | | | | | |
| | | | | <221> | CDS | | | | | | | | | | | | | | | | | | | | |
| | | | | <222> | 226..3174 | | | | | | | | | | | | | | | | | | | | |
| | | | | <400> | 4 | | | | | | | | | | | | | | | | | | | | |
| 30 | ccc | gct | ctg | c | ttc | agc | gc | cac | gct | gaag | acg | gc | act | agg | ac | ccg | gag | cgg | 60 | | | | | | |
| | gg | ttc | gc | cg | ga | ag | cc | ag | ca | gc | cc | ga | ct | tc | cc | agt | gt | caa | act | tg | ac | at | cag | cct | 120 |
| | gc | gag | cg | gag | cat | gg | ta | act | tct | cc | ag | caa | tc | ag | ag | cgc | ct | ccc | ct | ca | tc | ag | tgg | cat | 180 |
| | gct | tc | at | gga | gat | at | gct | cc | tct | ca | ctg | cc | ac | ca | g | aa | c | at | g | at | g | t | g | cag | 237 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ctc | tcc | atc | ctc | ctc | ctt | ctc | agc | tgc | tct | gtt | ctc | gac | agc | ttc | ggg | 285 | | | | | | | | |
| | Leu | Ser | Ile | Leu | Leu | Leu | Leu | Ser | Cys | Ser | Val | Leu | Asp | Ser | Phe | Gly | | | | | | | | | |
| | 5 | | | | | 10 | | | | | 15 | | | | | 20 | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | gaa | ctg | att | ccg | cag | cct | tcc | aat | gaa | gtc | aat | cta | ctg | gat | tca | aaa | 333 | | | | | | | | |
| | Glu | Leu | Ile | Pro | Gln | Pro | Ser | Asn | Glu | Val | Asn | Leu | Leu | Asp | Ser | Lys | | | | | | | | | |
| | | | | | 25 | | | | | 30 | | | | 35 | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | aca | att | caa | ggg | gag | ctg | ggc | tgg | atc | tct | tat | cca | tca | cat | ggg | tgg | 381 | | | | | | | | |
| | Thr | Ile | Gln | Gly | Glu | Leu | Gly | Trp | Ile | Ser | Tyr | Pro | Ser | His | Gly | Trp | | | | | | | | | |
| | | | | 40 | | | | 45 | | | | | | 50 | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | gaa | gag | atc | agt | ggg | gtg | gat | gaa | cat | tac | aca | ccc | atc | agg | act | tac | 429 | | | | | | | | |
| | Glu | Glu | Ile | Ser | Gly | Val | Asp | Glu | His | Tyr | Thr | Pro | Ile | Arg | Thr | Tyr | | | | | | | | | |
| | | | 55 | | | | | 60 | | | | | 65 | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | cag | gtg | tgc | aat | gtc | atg | gac | cac | agt | caa | aac | aat | tgg | ctg | aga | aca | 477 | | | | | | | | |
| | Gln | Val | Cys | Asn | Val | Met | Asp | His | Ser | Gln | Asn | Asn | Trp | Leu | Arg | Thr | | | | | | | | | |
| | | 70 | | | | | 75 | | | | | 80 | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | aac | tgg | gtc | ccc | agg | aac | tca | gct | cag | aag | att | tat | gtg | gag | ctc | aag | 525 | | | | | | | | |
| | Asn | Trp | Val | Pro | Arg | Asn | Ser | Ala | Gln | Lys | Ile | Tyr | Val | Glu | Leu | Lys | | | | | | | | | |
| | 85 | | | | | 90 | | | | | 95 | | | | | 100 | | | | | | | | | |

| | | |
|----|---|------|
| | ttc act cta cga gac tgc aat agc att cca ttg gtt tta gga act tgc | 573 |
| | Phe Thr Leu Arg Asp Cys Asn Ser Ile Pro Leu Val Leu Gly Thr Cys | |
| | 105 110 115 | |
| 5 | aag gag aca ttc aac ctg tac tac atg gag tct gat gat gat cat ggg | 621 |
| | Lys Glu Thr Phe Asn Leu Tyr Tyr Met Glu Ser Asp Asp Asp His Gly | |
| | 120 125 130 | |
| 10 | gtg aaa ttt cga gag cat cag ttt aca aag att gac acc att gca gct | 669 |
| | Val Lys Phe Arg Glu His Gln Phe Thr Lys Ile Asp Thr Ile Ala Ala | |
| | 135 140 145 | |
| 15 | gat gaa agt ttc act caa atg gat ctt ggg gac cgt att ctg aag ctc | 717 |
| | Asp Glu Ser Phe Thr Gln Met Asp Leu Gly Asp Arg Ile Leu Lys Leu | |
| | 150 155 160 | |
| 20 | aac act gag att aga gaa gta ggt cct gtc aac aag aag gga ttt tat | 765 |
| | Asn Thr Glu Ile Arg Glu Val Gly Pro Val Asn Lys Lys Gly Phe Tyr | |
| | 165 170 175 180 | |
| 25 | ttg gca ttt caa gat gtt ggt gct tgt gtt gcc ttg gtg tct gtg aga | 813 |
| | Leu Ala Phe Gln Asp Val Gly Ala Cys Val Ala Leu Val Ser Val Arg | |
| | 185 190 195 | |
| 30 | gta tac ttc aaa aag tgc cca ttt aca gtg aag aat ctg gct atg ttt | 861 |
| | Val Tyr Phe Lys Lys Cys Pro Phe Thr Val Lys Asn Leu Ala Met Phe | |
| | 200 205 210 | |
| 35 | cca gac acg gta ccc atg gac tcc cag tcc ctg gtg gag gtt aga ggg | 909 |
| | Pro Asp Thr Val Pro Met Asp Ser Gln Ser Leu Val Glu Val Arg Gly | |
| | 215 220 225 | |
| 40 | tct tgt gtc aac aat tct aag gag gaa gat cct cca agg atg tac tgc | 957 |
| | Ser Cys Val Asn Asn Ser Lys Glu Glu Asp Pro Pro Arg Met Tyr Cys | |
| | 230 235 240 | |
| 45 | agt aca gaa ggc gaa tgg ctt gta ccc att ggc aag tgt tcc tgc aat | 1005 |
| | Ser Thr Glu Gly Glu Trp Leu Val Pro Ile Gly Lys Cys Ser Cys Asn | |
| | 245 250 255 260 | |
| 50 | gct ggc tat gaa gaa aga ggt ttt atg tgc caa gct tgt cga cca ggt | 1053 |
| | Ala Gly Tyr Glu Glu Arg Gly Phe Met Cys Gln Ala Cys Arg Pro Gly | |
| | 265 270 275 | |
| 55 | ttc tac aag gca ttg gat ggt aat atg aag tgt gct aag tgc ccg cct | 1101 |
| | Phe Tyr Lys Ala Leu Asp Gly Asn Met Lys Cys Ala Lys Cys Pro Pro | |
| | 280 285 290 | |
| 60 | cac agt tct act cag gaa gat ggt tca atg aac tgc agg tgt gag aat | 1149 |
| | His Ser Ser Thr Gln Glu Asp Gly Ser Met Asn Cys Arg Cys Glu Asn | |
| | 295 300 305 | |
| 65 | aat tac ttc cgg gca gac aaa gac cct cca tcc atg gct tgt acc cga | 1197 |
| | Asn Tyr Phe Arg Ala Asp Lys Asp Pro Pro Ser Met Ala Cys Thr Arg | |
| | 310 315 320 | |
| 70 | cct cca tct tca cca aga aat gtt atc tct aat ata aac gag acc tca | 1245 |
| | Pro Pro Ser Ser Pro Arg Asn Val Ile Ser Asn Ile Asn Glu Thr Ser | |
| | 325 330 335 340 | |

| | | |
|----|---|------|
| | gtt atc ctg gac tgg agt tgg ccc ctg gac aca gga ggc cgg aaa gat | 1293 |
| | Val Ile Leu Asp Trp Ser Trp Pro Leu Asp Thr Gly Gly Arg Lys Asp | |
| | 345 350 355 | |
| 5 | gtt acc ttc aac atc ata tgt aaa aaa tgt ggg tgg aat ata aaa cag | 1341 |
| | Val Thr Phe Asn Ile Ile Cys Lys Lys Cys Gly Trp Asn Ile Lys Gln | |
| | 360 365 370 | |
| 10 | tgt gag cca tgc agc cca aat gtc cgc ttc ctc cct cga cag ttt gga | 1389 |
| | Cys Glu Pro Cys Ser Pro Asn Val Arg Phe Leu Pro Arg Gln Phe Gly | |
| | 375 380 385 | |
| 15 | ctc acc aac acc acg gtg aca gtg aca gac ctt ctg gca cat act aac | 1437 |
| | Leu Thr Asn Thr Thr Val Thr Val Thr Asp Leu Leu Ala His Thr Asn | |
| | 390 395 400 | |
| 20 | tac acc ttt gag att gat gcc gtt aat ggg gtg tca gag ctg agc tcc | 1485 |
| | Tyr Thr Phe Glu Ile Asp Ala Val Asn Gly Val Ser Glu Leu Ser Ser | |
| | 405 410 415 420 | |
| | cca cca aga cag ttt gct gcg gtc agc atc aca act aat cag gct gct | 1533 |
| | Pro Pro Arg Gln Phe Ala Ala Val Ser Ile Thr Thr Asn Gln Ala Ala | |
| | 425 430 435 | |
| 25 | cca tca cct gtc ctg acg att aag aaa gat cgg acc tcc aga aat agc | 1581 |
| | Pro Ser Pro Val Leu Thr Ile Lys Lys Asp Arg Thr Ser Arg Asn Ser | |
| | 440 445 450 | |
| 30 | atc tct ttg tcc tgg caa gaa cct gaa cat cct aat ggg atc ata ttg | 1629 |
| | Ile Ser Leu Ser Trp Gln Glu Pro Glu His Pro Asn Gly Ile Ile Leu | |
| | 455 460 465 | |
| 35 | gac tac gag gtc aaa tac tat gaa aag cag gaa caa gaa aca agt tat | 1677 |
| | Asp Tyr Glu Val Lys Tyr Tyr Glu Lys Gln Glu Gln Glu Thr Ser Tyr | |
| | 470 475 480 | |
| 40 | acc att ctg agg gca aga ggc aca aat gtt acc atc agt agc ctc aag | 1725 |
| | Thr Ile Leu Arg Ala Arg Gly Thr Asn Val Thr Ile Ser Ser Leu Lys | |
| | 485 490 495 500 | |
| | cct gac act ata tac gta ttc caa atc cga gcc cga aca gcc gct gga | 1773 |
| | Pro Asp Thr Ile Tyr Val Phe Gln Ile Arg Ala Arg Thr Ala Ala Gly | |
| | 505 510 515 | |
| 45 | tat ggg acg aac agc cgc aag ttt gag ttt gaa act agt cca gac tct | 1821 |
| | Tyr Gly Thr Asn Ser Arg Lys Phe Glu Phe Glu Thr Ser Pro Asp Ser | |
| | 520 525 530 | |
| 50 | ttc tcc atc tct ggt gaa agt agc caa gtg gtc atg atc gcc att tca | 1869 |
| | Phe Ser Ile Ser Gly Glu Ser Ser Gln Val Val Met Ile Ala Ile Ser | |
| | 535 540 545 | |
| 55 | gcg gca gta gca att att ctc ctc act gtt gtc atc tat gtt ttg att | 1917 |
| | Ala Ala Val Ala Ile Ile Leu Leu Thr Val Val Ile Tyr Val Leu Ile | |
| | 550 555 560 | |
| 60 | ggg agg ttc tgt ggc tat aag tca aaa cat ggg gca gat gaa aaa aga | 1965 |
| | Gly Arg Phe Cys Gly Tyr Lys Ser Lys His Gly Ala Asp Glu Lys Arg | |
| | 565 570 575 580 | |

| | | |
|----|---|------|
| | ctt cat ttt ggc aat ggg cat tta aaa ctt cca ggt ctc agg act tat | 2013 |
| | Leu His Phe Gly Asn Gly His Leu Lys Leu Pro Gly Leu Arg Thr Tyr | |
| | 585 590 595 | |
| 5 | gtt gac cca cat aca tat gaa gac cct acc caa gct gtt cat gag ttt | 2061 |
| | Val Asp Pro His Thr Tyr Glu Asp Pro Thr Gln Ala Val His Glu Phe | |
| | 600 605 610 | |
| 10 | gcc aag gaa ttg gat gcc acc aac ata tcc att gat aaa gtt gtt gga | 2109 |
| | Ala Lys Glu Leu Asp Ala Thr Asn Ile Ser Ile Asp Lys Val Val Gly | |
| | 615 620 625 | |
| 15 | gca ggt gaa ttt gga gag gtg tgc agt ggt cgc tta aaa ctt cct tca | 2157 |
| | Ala Gly Glu Phe Gly Glu Val Cys Ser Gly Arg Leu Lys Leu Pro Ser | |
| | 630 635 640 | |
| 20 | aaa aaa gag att tca gtg gcc att aag acc ctg aaa gtt ggc tac aca | 2205 |
| | Lys Lys Glu Ile Ser Val Ala Ile Lys Thr Leu Lys Val Gly Tyr Thr | |
| | 645 650 655 660 | |
| | gaa aag cag agg aga gac ttc ctg gga gaa gca agc att atg gga cag | 2253 |
| | Glu Lys Gln Arg Arg Asp Phe Leu Gly Glu Ala Ser Ile Met Gly Gln | |
| | 665 670 675 | |
| 25 | ttt gac cac ccc aat atc att cga ctg gaa gga gtt gtt acc aaa agt | 2301 |
| | Phe Asp His Pro Asn Ile Ile Arg Leu Glu Gly Val Val Thr Lys Ser | |
| | 680 685 690 | |
| 30 | aag cca gtt atg att gtc aca gaa tac atg gag aat ggt tcc ttg gat | 2349 |
| | Lys Pro Val Met Ile Val Thr Glu Tyr Met Glu Asn Gly Ser Leu Asp | |
| | 695 700 705 | |
| 35 | agt ttc cta cgt aaa cac gat gcc cag ttt act gtc att cag cta gtg | 2397 |
| | Ser Phe Leu Arg Lys His Asp Ala Gln Phe Thr Val Ile Gln Leu Val | |
| | 710 715 720 | |
| 40 | ggg atg ctt cga ggg ata gca tct ggc atg aag tac ctg tca gac atg | 2445 |
| | Gly Met Leu Arg Gly Ile Ala Ser Gly Met Lys Tyr Leu Ser Asp Met | |
| | 725 730 735 740 | |
| | ggc tat gtt cac cga gac ctc gct gct cgg aac atc ttg atc aac agt | 2493 |
| | Gly Tyr Val His Arg Asp Leu Ala Ala Arg Asn Ile Leu Ile Asn Ser | |
| | 745 750 755 | |
| 45 | aac ttg gtg tgt aag gtt tct gat ttc gga ctt tcg cgt gtc ctg gag | 2541 |
| | Asn Leu Val Cys Lys Val Ser Asp Phe Gly Leu Ser Arg Val Leu Glu | |
| | 760 765 770 | |
| 50 | gat gac cca gaa gct gct tat aca aca aga gga ggg aag atc cca atc | 2589 |
| | Asp Asp Pro Glu Ala Ala Tyr Thr Thr Arg Gly Gly Lys Ile Pro Ile | |
| | 775 780 785 | |
| 55 | agg tgg aca tca cca gaa gct ata gcc tac cgc aag ttc acg tca gcc | 2637 |
| | Arg Trp Thr Ser Pro Glu Ala Ile Ala Tyr Arg Lys Phe Thr Ser Ala | |
| | 790 795 800 | |
| 60 | agc gat gta tgg agt tat ggg att gtt ctc tgg gag gtg atg tct tat | 2685 |
| | Ser Asp Val Trp Ser Tyr Gly Ile Val Leu Trp Glu Val Met Ser Tyr | |
| | 805 810 815 820 | |

| | | |
|----|--|------|
| | gga gag aga cca tac tgg gag atg tcc aat cag gat gta att aaa gct | 2733 |
| | Gly Glu Arg Pro Tyr Trp Glu Met Ser Asn Gln Asp Val Ile Lys Ala | |
| | 825 830 835 | |
| 5 | gta gat gag ggc tat cga ctg cca ccc ccc atg gac tgc cca gct gcc | 2781 |
| | Val Asp Glu Gly Tyr Arg Leu Pro Pro Pro Met Asp Cys Pro Ala Ala | |
| | 840 845 850 | |
| 10 | ttg tat cag ctg atg ctg gac tgc tgg cag aaa gac agg aac aac aga | 2829 |
| | Leu Tyr Gln Leu Met Leu Asp Cys Trp Gln Lys Asp Arg Asn Asn Arg | |
| | 855 860 865 | |
| 15 | ccc aag ttt gag cag att gtt agt att ctg gac aag ctt atc cgg aat | 2877 |
| | Pro Lys Phe Glu Gln Ile Val Ser Ile Leu Asp Lys Leu Ile Arg Asn | |
| | 870 875 880 | |
| 20 | ccc ggc agc ctg aag atc atc acc agt gca gcc gca agg cca tca aac | 2925 |
| | Pro Gly Ser Leu Lys Ile Ile Thr Ser Ala Ala Ala Arg Pro Ser Asn | |
| | 885 890 895 900 | |
| | ctt ctt ctg gac caa agc aat gtg gat atc act acc ttc cgc aca aca | 2973 |
| | Leu Leu Leu Asp Gln Ser Asn Val Asp Ile Thr Thr Phe Arg Thr Thr | |
| | 905 910 915 | |
| 25 | ggt gac tgg ctt aat ggt gtc tgg aca gca cac tgc aag gaa atc ttc | 3021 |
| | Gly Asp Trp Leu Asn Gly Val Trp Thr Ala His Cys Lys Glu Ile Phe | |
| | 920 925 930 | |
| 30 | acg ggt gtg gag tac agt tct tgt gac aca ata gcc aag att tcc aca | 3069 |
| | Thr Gly Val Glu Tyr Ser Ser Cys Asp Thr Ile Ala Lys Ile Ser Thr | |
| | 935 940 945 | |
| 35 | gat gac atg aaa aag gtt ggt gtc acc gtg gtt ggg cca cag aag aag | 3117 |
| | Asp Asp Met Lys Lys Val Gly Val Thr Val Val Gly Pro Gln Lys Lys | |
| | 950 955 960 | |
| 40 | atc atc agt agc att aaa gct cta gaa acg caa tca aag aat ggc cca | 3165 |
| | Ile Ile Ser Ser Ile Lys Ala Leu Glu Thr Gln Ser Lys Asn Gly Pro | |
| | 965 970 975 980 | |
| | ggt ccc gtg taaagcacgg gacggaagtg cttctggacg gaagtgggtgg | 3214 |
| | Val Pro Val | |
| 45 | ctgtggaagg cgtagcatca tctgcagac agacaataat tctggagata ctggtggaag | 3274 |
| | ttccaagtcc aataagacac tcaaat | 3300 |
| 50 | <210> 5 | |
| | <211> 983 | |
| | <212> PRT | |
| | <213> Homo sapiens | |
| 55 | <400> 5 | |
| | Met Asp Cys Gln Leu Ser Ile Leu Leu Leu Leu Ser Cys Ser Val Leu | |
| | 1 5 10 15 | |
| | Asp Ser Phe Gly Glu Leu Ile Pro Gln Pro Ser Asn Glu Val Asn Leu | |
| | 20 25 30 | |
| 60 | Leu Asp Ser Lys Thr Ile Gln Gly Glu Leu Gly Trp Ile Ser Tyr Pro | |
| | 35 40 45 | |

| | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Ser | His | Gly | Trp | Glu | Glu | Ile | Ser | Gly | Val | Asp | Glu | His | Tyr | Thr | Pro |
| | 50 | | | | | | 55 | | | | | 60 | | | | |
| | Ile | Arg | Thr | Tyr | Gln | Val | Cys | Asn | Val | Met | Asp | His | Ser | Gln | Asn | Asn |
| | 65 | | | | 70 | | | | | | 75 | | | | | 80 |
| 5 | Trp | Leu | Arg | Thr | Asn | Trp | Val | Pro | Arg | Asn | Ser | Ala | Gln | Lys | Ile | Tyr |
| | | | | | 85 | | | | | 90 | | | | | 95 | |
| | Val | Glu | Leu | Lys | Phe | Thr | Leu | Arg | Asp | Cys | Asn | Ser | Ile | Pro | Leu | Val |
| | | | | 100 | | | | | 105 | | | | | 110 | | |
| 10 | Leu | Gly | Thr | Cys | Lys | Glu | Thr | Phe | Asn | Leu | Tyr | Tyr | Met | Glu | Ser | Asp |
| | | | | 115 | | | | 120 | | | | | 125 | | | |
| | Asp | Asp | His | Gly | Val | Lys | Phe | Arg | Glu | His | Gln | Phe | Thr | Lys | Ile | Asp |
| | 130 | | | | | | 135 | | | | | 140 | | | | |
| | Thr | Ile | Ala | Ala | Asp | Glu | Ser | Phe | Thr | Gln | Met | Asp | Leu | Gly | Asp | Arg |
| | 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| 15 | Ile | Leu | Lys | Leu | Asn | Thr | Glu | Ile | Arg | Glu | Val | Gly | Pro | Val | Asn | Lys |
| | | | | | 165 | | | | | 170 | | | | | 175 | |
| | Lys | Gly | Phe | Tyr | Leu | Ala | Phe | Gln | Asp | Val | Gly | Ala | Cys | Val | Ala | Leu |
| | | | | 180 | | | | 185 | | | | | 190 | | | |
| 20 | Val | Ser | Val | Arg | Val | Tyr | Phe | Lys | Lys | Cys | Pro | Phe | Thr | Val | Lys | Asn |
| | | | 195 | | | | | 200 | | | | | 205 | | | |
| | Leu | Ala | Met | Phe | Pro | Asp | Thr | Val | Pro | Met | Asp | Ser | Gln | Ser | Leu | Val |
| | | | 210 | | | | 215 | | | | | 220 | | | | |
| | Glu | Val | Arg | Gly | Ser | Cys | Val | Asn | Asn | Ser | Lys | Glu | Glu | Asp | Pro | Pro |
| | 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| 25 | Arg | Met | Tyr | Cys | Ser | Thr | Glu | Gly | Glu | Trp | Leu | Val | Pro | Ile | Gly | Lys |
| | | | | | 245 | | | | | 250 | | | | | 255 | |
| | Cys | Ser | Cys | Asn | Ala | Gly | Tyr | Glu | Glu | Arg | Gly | Phe | Met | Cys | Gln | Ala |
| | | | | 260 | | | | 265 | | | | | 270 | | | |
| 30 | Cys | Arg | Pro | Gly | Phe | Tyr | Lys | Ala | Leu | Asp | Gly | Asn | Met | Lys | Cys | Ala |
| | | | 275 | | | | | 280 | | | | 285 | | | | |
| | Lys | Cys | Pro | Pro | His | Ser | Ser | Thr | Gln | Glu | Asp | Gly | Ser | Met | Asn | Cys |
| | | | 290 | | | | 295 | | | | | 300 | | | | |
| | Arg | Cys | Glu | Asn | Asn | Tyr | Phe | Arg | Ala | Asp | Lys | Asp | Pro | Pro | Ser | Met |
| | 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| 35 | Ala | Cys | Thr | Arg | Pro | Ser | Ser | Pro | Arg | Asn | Val | Ile | Ser | Asn | Ile | |
| | | | | | 325 | | | | 330 | | | | | 335 | | |
| | Asn | Glu | Thr | Ser | Val | Ile | Leu | Asp | Trp | Ser | Trp | Pro | Leu | Asp | Thr | Gly |
| | | | | 340 | | | | 345 | | | | | 350 | | | |
| 40 | Gly | Arg | Lys | Asp | Val | Thr | Phe | Asn | Ile | Ile | Cys | Lys | Lys | Cys | Gly | Trp |
| | | | 355 | | | | | 360 | | | | | 365 | | | |
| | Asn | Ile | Lys | Gln | Cys | Glu | Pro | Cys | Ser | Pro | Asn | Val | Arg | Phe | Leu | Pro |
| | | | 370 | | | | 375 | | | | | 380 | | | | |
| | Arg | Gln | Phe | Gly | Leu | Thr | Asn | Thr | Thr | Val | Thr | Val | Thr | Asp | Leu | Leu |
| | 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| 45 | Ala | His | Thr | Asn | Tyr | Thr | Phe | Glu | Ile | Asp | Ala | Val | Asn | Gly | Val | Ser |
| | | | | | 405 | | | | | 410 | | | | | 415 | |
| | Glu | Leu | Ser | Ser | Pro | Pro | Arg | Gln | Phe | Ala | Ala | Val | Ser | Ile | Thr | Thr |
| | | | | 420 | | | | 425 | | | | | 430 | | | |
| 50 | Asn | Gln | Ala | Ala | Pro | Ser | Pro | Val | Leu | Thr | Ile | Lys | Lys | Asp | Arg | Thr |
| | | | 435 | | | | | 440 | | | | 445 | | | | |
| | Ser | Arg | Asn | Ser | Ile | Ser | Leu | Ser | Trp | Gln | Glu | Pro | Glu | His | Pro | Asn |
| | | 450 | | | | 455 | | | | | 460 | | | | | |
| | Gly | Ile | Ile | Leu | Asp | Tyr | Glu | Val | Lys | Tyr | Tyr | Glu | Lys | Gln | Glu | Gln |
| | 465 | | | | | 470 | | | | 475 | | | | | | 480 |
| 55 | Glu | Thr | Ser | Tyr | Thr | Ile | Leu | Arg | Ala | Arg | Gly | Thr | Asn | Val | Thr | Ile |
| | | | | | 485 | | | | | 490 | | | | | 495 | |
| | Ser | Ser | Leu | Lys | Pro | Asp | Thr | Ile | Tyr | Val | Phe | Gln | Ile | Arg | Ala | Arg |
| | | | | 500 | | | | 505 | | | | | 510 | | | |
| 60 | Thr | Ala | Ala | Gly | Tyr | Gly | Thr | Asn | Ser | Arg | Lys | Phe | Glu | Phe | Glu | Thr |
| | | | 515 | | | | 520 | | | | | | 525 | | | |

| | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Ser | Pro | Asp | Ser | Phe | Ser | Ile | Ser | Gly | Glu | Ser | Ser | Gln | Val | Val | Met |
| | 530 | | | | | | 535 | | | | | 540 | | | | |
| | Ile | Ala | Ile | Ser | Ala | Ala | Val | Ala | Ile | Ile | Leu | Leu | Thr | Val | Val | Ile |
| | 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| 5 | Tyr | Val | Leu | Ile | Gly | Arg | Phe | Cys | Gly | Tyr | Lys | Ser | Lys | His | Gly | Ala |
| | | | | | 565 | | | | | 570 | | | | | | 575 |
| | Asp | Glu | Lys | Arg | Leu | His | Phe | Gly | Asn | Gly | His | Leu | Lys | Leu | Pro | Gly |
| | | | | 580 | | | | | 585 | | | | | 590 | | |
| 10 | Leu | Arg | Thr | Tyr | Val | Asp | Pro | His | Thr | Tyr | Glu | Asp | Pro | Thr | Gln | Ala |
| | | | 595 | | | | | 600 | | | | | 605 | | | |
| | Val | His | Glu | Phe | Ala | Lys | Glu | Leu | Asp | Ala | Thr | Asn | Ile | Ser | Ile | Asp |
| | 610 | | | | | | 615 | | | | | 620 | | | | |
| | Lys | Val | Val | Gly | Ala | Gly | Glu | Phe | Gly | Glu | Val | Cys | Ser | Gly | Arg | Leu |
| | 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| 15 | Lys | Leu | Pro | Ser | Lys | Lys | Glu | Ile | Ser | Val | Ala | Ile | Lys | Thr | Leu | Lys |
| | | | | | 645 | | | | | 650 | | | | | | 655 |
| | Val | Gly | Tyr | Thr | Glu | Lys | Gln | Arg | Arg | Asp | Phe | Leu | Gly | Glu | Ala | Ser |
| | | | | 660 | | | | | 665 | | | | | 670 | | |
| 20 | Ile | Met | Gly | Gln | Phe | Asp | His | Pro | Asn | Ile | Ile | Arg | Leu | Glu | Gly | Val |
| | | | 675 | | | | | 680 | | | | | 685 | | | |
| | Val | Thr | Lys | Ser | Lys | Pro | Val | Met | Ile | Val | Thr | Glu | Tyr | Met | Glu | Asn |
| | 690 | | | | | 695 | | | | | | 700 | | | | |
| | Gly | Ser | Leu | Asp | Ser | Phe | Leu | Arg | Lys | His | Asp | Ala | Gln | Phe | Thr | Val |
| | 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| 25 | Ile | Gln | Leu | Val | Gly | Met | Leu | Arg | Gly | Ile | Ala | Ser | Gly | Met | Lys | Tyr |
| | | | | | 725 | | | | | 730 | | | | | | 735 |
| | Leu | Ser | Asp | Met | Gly | Tyr | Val | His | Arg | Asp | Leu | Ala | Ala | Arg | Asn | Ile |
| | | | | 740 | | | | | 745 | | | | | 750 | | |
| 30 | Leu | Ile | Asn | Ser | Asn | Leu | Val | Cys | Lys | Val | Ser | Asp | Phe | Gly | Leu | Ser |
| | | | 755 | | | | | 760 | | | | | 765 | | | |
| | Arg | Val | Leu | Glu | Asp | Asp | Pro | Glu | Ala | Ala | Tyr | Thr | Thr | Arg | Gly | Gly |
| | 770 | | | | | | 775 | | | | | | 780 | | | |
| | Lys | Ile | Pro | Ile | Arg | Trp | Thr | Ser | Pro | Glu | Ala | Ile | Ala | Tyr | Arg | Lys |
| | 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| 35 | Phe | Thr | Ser | Ala | Ser | Asp | Val | Trp | Ser | Tyr | Gly | Ile | Val | Leu | Trp | Glu |
| | | | | | 805 | | | | | 810 | | | | | | 815 |
| | Val | Met | Ser | Tyr | Gly | Glu | Arg | Pro | Tyr | Trp | Glu | Met | Ser | Asn | Gln | Asp |
| | | | | 820 | | | | | 825 | | | | | 830 | | |
| 40 | Val | Ile | Lys | Ala | Val | Asp | Glu | Gly | Tyr | Arg | Leu | Pro | Pro | Pro | Met | Asp |
| | | | 835 | | | | | 840 | | | | | 845 | | | |
| | Cys | Pro | Ala | Ala | Leu | Tyr | Gln | Leu | Met | Leu | Asp | Cys | Trp | Gln | Lys | Asp |
| | 850 | | | | | | 855 | | | | 860 | | | | | |
| | Arg | Asn | Asn | Arg | Pro | Lys | Phe | Glu | Gln | Ile | Val | Ser | Ile | Leu | Asp | Lys |
| | 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| 45 | Leu | Ile | Arg | Asn | Pro | Gly | Ser | Leu | Lys | Ile | Ile | Thr | Ser | Ala | Ala | Ala |
| | | | | | 885 | | | | | 890 | | | | | | 895 |
| | Arg | Pro | Ser | Asn | Leu | Leu | Leu | Asp | Gln | Ser | Asn | Val | Asp | Ile | Thr | Thr |
| | | | | 900 | | | | | 905 | | | | | 910 | | |
| 50 | Phe | Arg | Thr | Thr | Gly | Asp | Trp | Leu | Asn | Gly | Val | Trp | Thr | Ala | His | Cys |
| | | | 915 | | | | | 920 | | | | | 925 | | | |
| | Lys | Glu | Ile | Phe | Thr | Gly | Val | Glu | Tyr | Ser | Ser | Cys | Asp | Thr | Ile | Ala |
| | 930 | | | | | 935 | | | | | | 940 | | | | |
| | Lys | Ile | Ser | Thr | Asp | Asp | Met | Lys | Lys | Val | Gly | Val | Thr | Val | Val | Gly |
| | 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| 55 | Pro | Gln | Lys | Lys | Ile | Ile | Ser | Ser | Ile | Lys | Ala | Leu | Glu | Thr | Gln | Ser |
| | | | | | 965 | | | | | 970 | | | | | | 975 |
| | Lys | Asn | Gly | Pro | Val | Pro | Val | | | | | | | | | |
| | | | | 980 | | | | | | | | | | | | |

```

<210> 6
<211> 2546
<212> DNA
<213> Homo sapiens

5
<220>
<221> CDS
<222> 88..1704

10
<400> 6
cttctccagc aatcagagcg ctccccctca catcagtggc atgcttcatg gagatatgct 60
cctctcactg ccctctgcac cagcaac atg gat tgt cag ctc tcc atc ctc ctc 114
Met Asp Cys Gln Leu Ser Ile Leu Leu
1 5

15
ctt ctc agc tgc tct gtt ctc gac agc ttc ggg gaa ctg att ccg cag 162
Leu Leu Ser Cys Ser Val Leu Asp Ser Phe Gly Glu Leu Ile Pro Gln
10 15 20 25

20
cct tcc aat gaa gtc aat cta ctg gat tca aaa aca att caa ggg gag 210
Pro Ser Asn Glu Val Asn Leu Leu Asp Ser Lys Thr Ile Gln Gly Glu
30 35 40

25
ctg ggc tgg atc tct tat cca tca cat ggg tgg gaa gag atc agt ggt 258
Leu Gly Trp Ile Ser Tyr Pro Ser His Gly Trp Glu Glu Ile Ser Gly
45 50 55

30
gtg gat gaa cat tac aca ccc atc agg act tac cag gtg tgc aat gtc 306
Val Asp Glu His Tyr Thr Pro Ile Arg Thr Tyr Gln Val Cys Asn Val
60 65 70

35
atg gac cac agt caa aac aat tgg ctg aga aca aac tgg gtc ccc agg 354
Met Asp His Ser Gln Asn Asn Trp Leu Arg Thr Asn Trp Val Pro Arg
75 80 85

40
aac tca gct cag aag att tat gtg gag ctc aag ttc act cta cga gac 402
Asn Ser Ala Gln Lys Ile Tyr Val Glu Leu Lys Phe Thr Leu Arg Asp
90 95 100 105

45
tgc aat agc att cca ttg gtt tta gga act tgc aag gag aca ttc aac 450
Cys Asn Ser Ile Pro Leu Val Leu Gly Thr Cys Lys Glu Thr Phe Asn
110 115 120

50
ctg tac tac atg gag tct gat gat gat cat ggg gtg aaa ttt cga gag 498
Leu Tyr Tyr Met Glu Ser Asp Asp Asp His Gly Val Lys Phe Arg Glu
125 130 135

55
cat cag ttt aca aag att gac acc att gca gct gat gaa agt ttc act 546
His Gln Phe Thr Lys Ile Asp Thr Ile Ala Ala Asp Glu Ser Phe Thr
140 145 150

60
caa atg gat ctt ggg gac cgt att ctg aag ctc aac act gag att aga 594
Gln Met Asp Leu Gly Asp Arg Ile Leu Lys Leu Asn Thr Glu Ile Arg
155 160 165

65
gaa gta ggt cct gtc aac aag aag gga ttt tat ttg gca ttt caa gat 642
Glu Val Gly Pro Val Asn Lys Lys Gly Phe Tyr Leu Ala Phe Gln Asp
170 175 180 185

70
gtt ggt gct tgt gtt gcc ttg gtg tct gtg aga gta tac ttc aaa aag 690

```

| | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | Val | Gly | Ala | Cys | Val | Ala | Leu | Val | Ser | Val | Arg | Val | Tyr | Phe | Lys | Lys | |
| | | | | 190 | | | | | | 195 | | | | | 200 | | |
| 5 | tgc | cca | ttt | aca | gtg | aag | aat | ctg | gct | atg | ttt | cca | gac | acg | gta | ccc | 738 |
| | Cys | Pro | Phe | Thr | Val | Lys | Asn | Leu | Ala | Met | Phe | Pro | Asp | Thr | Val | Pro | |
| | | | | 205 | | | | | 210 | | | | | 215 | | | |
| 10 | atg | gac | tcc | cag | tcc | ctg | gtg | gag | gtt | aga | ggg | tct | tgt | gtc | aac | aat | 786 |
| | Met | Asp | Ser | Gln | Ser | Leu | Val | Glu | Val | Arg | Gly | Ser | Cys | Val | Asn | Asn | |
| | | | | 220 | | | | | 225 | | | | | 230 | | | |
| 15 | tct | aag | gag | gaa | gat | cct | cca | agg | atg | tac | tgc | agt | aca | gaa | ggc | gaa | 834 |
| | Ser | Lys | Glu | Glu | Asp | Pro | Pro | Arg | Met | Tyr | Cys | Ser | Thr | Glu | Gly | Glu | |
| | | | | 235 | | | | 240 | | | | | | 245 | | | |
| 20 | tgg | ctt | gta | ccc | att | ggc | aag | tgt | tcc | tgc | aat | gct | ggc | tat | gaa | gaa | 882 |
| | Trp | Leu | Val | Pro | Ile | Gly | Lys | Cys | Ser | Cys | Asn | Ala | Gly | Tyr | Glu | Glu | |
| | | | | 250 | | | 255 | | | | 260 | | | | | 265 | |
| 25 | aga | ggt | ttt | atg | tgc | caa | gct | tgt | cga | cca | ggt | ttc | tac | aag | gca | ttg | 930 |
| | Arg | Gly | Phe | Met | Cys | Gln | Ala | Cys | Arg | Pro | Gly | Phe | Tyr | Lys | Ala | Leu | |
| | | | | 270 | | | | | | 275 | | | | | 280 | | |
| 30 | gat | ggt | aat | atg | aag | tgt | gct | aag | tgc | ccg | cct | cac | agt | tct | act | cag | 978 |
| | Asp | Gly | Asn | Met | Lys | Cys | Ala | Lys | Cys | Pro | Pro | His | Ser | Ser | Thr | Gln | |
| | | | | 285 | | | | | 290 | | | | | 295 | | | |
| 35 | gaa | gat | ggt | tca | atg | aac | tgc | agg | tgt | gag | aat | aat | tac | ttc | cgg | gca | 1026 |
| | Glu | Asp | Gly | Ser | Met | Asn | Cys | Arg | Cys | Glu | Asn | Asn | Tyr | Phe | Arg | Ala | |
| | | | | 300 | | | | 305 | | | | | | 310 | | | |
| 40 | gac | aaa | gac | cct | cca | tcc | atg | gct | tgt | acc | cga | cct | cca | tct | tca | cca | 1074 |
| | Asp | Lys | Asp | Pro | Pro | Ser | Met | Ala | Cys | Thr | Arg | Pro | Pro | Ser | Ser | Pro | |
| | | | | 315 | | | | 320 | | | | | 325 | | | | |
| 45 | aga | aat | gtt | atc | tct | aat | ata | aac | gag | acc | tca | gtt | atc | ctg | gac | tgg | 1122 |
| | Arg | Asn | Val | Ile | Ser | Asn | Ile | Asn | Glu | Thr | Ser | Val | Ile | Leu | Asp | Trp | |
| | | | | | | 335 | | | | | 340 | | | | | 345 | |
| 50 | agt | tgg | ccc | ctg | gac | aca | gga | ggc | cgg | aaa | gat | gtt | acc | ttc | aac | atc | 1170 |
| | Ser | Trp | Pro | Leu | Asp | Thr | Gly | Gly | Arg | Lys | Asp | Val | Thr | Phe | Asn | Ile | |
| | | | | | | 350 | | | | 355 | | | | | 360 | | |
| 55 | ata | tgt | aaa | aaa | tgt | ggg | tgg | aat | ata | aaa | cag | tgt | gag | cca | tgc | agc | 1218 |
| | Ile | Cys | Lys | Lys | Cys | Gly | Trp | Asn | Ile | Lys | Gln | Cys | Glu | Pro | Cys | Ser | |
| | | | | 365 | | | | | 370 | | | | | 375 | | | |
| 60 | cca | aat | gtc | cgc | ttc | ctc | cct | cga | cag | ttt | gga | ctc | acc | aac | acc | acg | 1266 |
| | Pro | Asn | Val | Arg | Phe | Leu | Pro | Arg | Gln | Phe | Gly | Leu | Thr | Asn | Thr | Thr | |
| | | | | 380 | | | | 385 | | | | | 390 | | | | |
| 65 | gtg | aca | gtg | aca | gac | ctt | ctg | gca | cat | act | aac | tac | acc | ttt | gag | att | 1314 |
| | Val | Thr | Val | Thr | Asp | Leu | Leu | Ala | His | Thr | Asn | Tyr | Thr | Phe | Glu | Ile | |
| | | | | 395 | | | 400 | | | | | | 405 | | | | |
| 70 | gat | gcc | gtt | aat | ggg | gtg | tca | gag | ctg | agc | tcc | cca | cca | aga | cag | ttt | 1362 |
| | Asp | Ala | Val | Asn | Gly | Val | Ser | Glu | Leu | Ser | Ser | Pro | Pro | Arg | Gln | Phe | |
| | | | | 410 | | | 415 | | | | 420 | | | | | 425 | |
| 75 | gct | gcg | gtc | agc | atc | aca | act | aat | cag | gct | gct | cca | tca | cct | gtc | ctg | 1410 |

| | | |
|----|---|------------------------------|
| | Ala Ala Val Ser Ile Thr Thr Asn Gln Ala Ala Pro Ser Pro Val Leu | |
| | 430 435 440 | |
| 5 | acg att aag aaa gat cgg acc tcc aga aat agc atc tct ttg tcc tgg Thr Ile Lys Lys Asp Arg Thr Ser Arg Asn Ser Ile Ser Leu Ser Trp | 1458 |
| | 445 450 455 | |
| 10 | caa gaa cct gaa cat cct aat ggg atc ata ttg gac tac gag gtc aaa Gln Glu Pro Glu His Pro Asn Gly Ile Ile Leu Asp Tyr Glu Val Lys | 1506 |
| | 460 465 470 | |
| 15 | tac tat gaa aag cag gaa caa gaa aca agt tat acc att ctg agg gca Tyr Tyr Glu Lys Gln Glu Gln Glu Thr Ser Tyr Thr Ile Leu Arg Ala | 1554 |
| | 475 480 485 | |
| 20 | aga ggc aca aat gtt acc atc agt agc ctc aag cct gac act ata tac Arg Gly Thr Asn Val Thr Ile Ser Ser Leu Lys Pro Asp Thr Ile Tyr | 1602 |
| | 490 495 500 505 | |
| 25 | gta ttc caa atc cga gcc cga aca gcc gct gga tat ggg acg aac agc Val Phe Gln Ile Arg Ala Arg Thr Ala Ala Gly Tyr Gly Thr Asn Ser | 1650 |
| | 510 515 520 | |
| 30 | cgc aag ttt gag ttt gaa act agt cca gac tgt atg tat tat ttc aat Arg Lys Phe Glu Phe Glu Thr Ser Pro Asp Cys Met Tyr Tyr Phe Asn | 1698 |
| | 525 530 535 | |
| 35 | gca gtc tagaggaggg ggcagggatc ttgcaaaaga tgtctgatcg tttattctca Ala Val | 1754 |
| 40 | ctgttttctaa gtttttaaaca aatgtgatac atttaaggta tattgcttgg gacattgcaa tttgagagc cctgtgtctg tatacagtat ttgtgtttgt gtgggtgtac attttgtgtt tctttttttt ttgtatgcaa atcaaacata ttctaatagcc tgaaatgctt ctgttttttt | 1814 1874 1934 |
| 45 | tttttagcca taaattgctt ttgaggaaca ttatttaata taggtaacac acttccagtg tctgtcattt cagatattcc aggttcattg cgtgattcaa tgaaccacaa aaaagaaact tgctgatcca tgagaatcctt aattttgttt taatccttaa cacattcaat agcatatcac | 1994 2054 2114 |
| 50 | agagagaata aggatttttct aaaatgtgtt ttatcacttc attcacattc agaagtaatt tgaatagcct gttccttttaa ccccaaattt ggctaaaatt ggcctaaaac tggcaaacat | 2174 2234 |
| 55 | ttttccagta acttttcttt ttttcaaatt aattttcttc atacttaaaa aagccctttg ctaaaatata attttcaaaa aggtaaaatt atgtctatgg cactaatata aaatgagtag | 2294 2354 |
| 60 | aagttaatga ttttacttaa ctcatttttt tctttctttc tttttttttt ttttttttga gacggagtct tgctctgtca cccaggctgg agtacagcag agcgatctcg gctcactgca agctcctgca agctccgcct cctggcttca cgccattctc cccctcagcc tcccagtag | 2414 2474 2534 2546 |
| | ctgggactac ag | |
| | <210> 7 | |
| | <211> 539 | |
| 50 | <212> PRT | |
| | <213> Homo sapiens | |
| | <400> 7 | |
| 55 | Met Asp Cys Gln Leu Ser Ile Leu Leu Leu Leu Ser Cys Ser Val Leu | |
| | 1 5 10 15 | |
| | Asp Ser Phe Gly Glu Leu Ile Pro Gln Pro Ser Asn Glu Val Asn Leu | |
| | 20 25 30 | |
| | Leu Asp Ser Lys Thr Ile Gln Gly Glu Leu Gly Trp Ile Ser Tyr Pro | |
| | 35 40 45 | |
| 60 | Ser His Gly Trp Glu Glu Ile Ser Gly Val Asp Glu His Tyr Thr Pro | |

| | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 50 | | 55 | | 60 | | | | | | | | | | | | |
| | Ile | Arg | Thr | Tyr | Gln | Val | Cys | Asn | Val | Met | Asp | His | Ser | Gln | Asn | Asn | |
| | 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| 5 | Trp | Leu | Arg | Thr | Asn | Trp | Val | Pro | Arg | Asn | Ser | Ala | Gln | Lys | Ile | Tyr | |
| | | | | | 85 | | | | | 90 | | | | | 95 | | |
| | Val | Glu | Leu | Lys | Phe | Thr | Leu | Arg | Asp | Cys | Asn | Ser | Ile | Pro | Leu | Val | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| | Leu | Gly | Thr | Cys | Lys | Glu | Thr | Phe | Asn | Leu | Tyr | Tyr | Met | Glu | Ser | Asp | |
| | | | 115 | | | | | 120 | | | | | 125 | | | | |
| 10 | Asp | Asp | His | Gly | Val | Lys | Phe | Arg | Glu | His | Gln | Phe | Thr | Lys | Ile | Asp | |
| | | 130 | | | | | 135 | | | | | 140 | | | | | |
| | Thr | Ile | Ala | Ala | Asp | Glu | Ser | Phe | Thr | Gln | Met | Asp | Leu | Gly | Asp | Arg | |
| | 145 | | | | 150 | | | | | | 155 | | | | | 160 | |
| | Ile | Leu | Lys | Leu | Asn | Thr | Glu | Ile | Arg | Glu | Val | Gly | Pro | Val | Asn | Lys | |
| 15 | | | | | 165 | | | | | 170 | | | | | | 175 | |
| | Lys | Gly | Phe | Tyr | Leu | Ala | Phe | Gln | Asp | Val | Gly | Ala | Cys | Val | Ala | Leu | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| | Val | Ser | Val | Arg | Val | Tyr | Phe | Lys | Lys | Cys | Pro | Phe | Thr | Val | Lys | Asn | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| 20 | Leu | Ala | Met | Phe | Pro | Asp | Thr | Val | Pro | Met | Asp | Ser | Gln | Ser | Leu | Val | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| | Glu | Val | Arg | Gly | Ser | Cys | Val | Asn | Asn | Ser | Lys | Glu | Glu | Asp | Pro | Pro | |
| | 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| | Arg | Met | Tyr | Cys | Ser | Thr | Glu | Gly | Glu | Trp | Leu | Val | Pro | Ile | Gly | Lys | |
| 25 | | | | | 245 | | | | | 250 | | | | | | 255 | |
| | Cys | Ser | Cys | Asn | Ala | Gly | Tyr | Glu | Glu | Arg | Gly | Phe | Met | Cys | Gln | Ala | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | |
| | Cys | Arg | Pro | Gly | Phe | Tyr | Lys | Ala | Leu | Asp | Gly | Asn | Met | Lys | Cys | Ala | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| 30 | Lys | Cys | Pro | Pro | His | Ser | Ser | Thr | Gln | Glu | Asp | Gly | Ser | Met | Asn | Cys | |
| | | 290 | | | | | 295 | | | | | 300 | | | | | |
| | Arg | Cys | Glu | Asn | Asn | Tyr | Phe | Arg | Ala | Asp | Lys | Asp | Pro | Pro | Ser | Met | |
| | 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| | Ala | Cys | Thr | Arg | Pro | Ser | Ser | Pro | Arg | Asn | Val | Ile | Ser | Asn | Ile | | |
| 35 | | | | | 325 | | | | | 330 | | | | | | 335 | |
| | Asn | Glu | Thr | Ser | Val | Ile | Leu | Asp | Trp | Ser | Trp | Pro | Leu | Asp | Thr | Gly | |
| | | | | 340 | | | | | 345 | | | | | 350 | | | |
| | Gly | Arg | Lys | Asp | Val | Thr | Phe | Asn | Ile | Ile | Cys | Lys | Lys | Cys | Gly | Trp | |
| | | | 355 | | | | | 360 | | | | | 365 | | | | |
| 40 | Asn | Ile | Lys | Gln | Cys | Glu | Pro | Cys | Ser | Pro | Asn | Val | Arg | Phe | Leu | Pro | |
| | | 370 | | | | | 375 | | | | | 380 | | | | | |
| | Arg | Gln | Phe | Gly | Leu | Thr | Asn | Thr | Thr | Val | Thr | Val | Thr | Asp | Leu | Leu | |
| | 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| | Ala | His | Thr | Asn | Tyr | Thr | Phe | Glu | Ile | Asp | Ala | Val | Asn | Gly | Val | Ser | |
| 45 | | | | | 405 | | | | | 410 | | | | | | 415 | |
| | Glu | Leu | Ser | Ser | Pro | Pro | Arg | Gln | Phe | Ala | Ala | Val | Ser | Ile | Thr | Thr | |
| | | | | 420 | | | | | 425 | | | | | 430 | | | |
| | Asn | Gln | Ala | Ala | Pro | Ser | Pro | Val | Leu | Thr | Ile | Lys | Lys | Asp | Arg | Thr | |
| | | | 435 | | | | | 440 | | | | | 445 | | | | |
| 50 | Ser | Arg | Asn | Ser | Ile | Ser | Leu | Ser | Trp | Gln | Glu | Pro | Glu | His | Pro | Asn | |
| | | 450 | | | | | 455 | | | | | 460 | | | | | |
| | Gly | Ile | Ile | Leu | Asp | Tyr | Glu | Val | Lys | Tyr | Tyr | Glu | Lys | Gln | Glu | Gln | |
| | 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| | Glu | Thr | Ser | Tyr | Thr | Ile | Leu | Arg | Ala | Arg | Gly | Thr | Asn | Val | Thr | Ile | |
| 55 | | | | | 485 | | | | | 490 | | | | | | 495 | |
| | Ser | Ser | Leu | Lys | Pro | Asp | Thr | Ile | Tyr | Val | Phe | Gln | Ile | Arg | Ala | Arg | |
| | | | | 500 | | | | | 505 | | | | | 510 | | | |
| | Thr | Ala | Ala | Gly | Tyr | Gly | Thr | Asn | Ser | Arg | Lys | Phe | Glu | Phe | Glu | Thr | |
| | | | 515 | | | | | 520 | | | | | 525 | | | | |
| 60 | Ser | Pro | Asp | Cys | Met | Tyr | Tyr | Phe | Asn | Ala | Val | | | | | | |

530

535

5 <210> 8
 <211> 9
 <212> PRT
 <213> Homo sapiens

 <400> 8
10 Glu Ala Asp Pro Thr Gly His Ser Tyr
 1 5

15 <210> 9
 <211> 9
 <212> PRT
 <213> Homo sapiens

20 <400> 9

 Ser Ala Tyr Gly Glu Pro Arg Lys Leu
 1 5

25 <210> 10
 <211> 9
 <212> PRT
 <213> Homo sapiens

30 <400> 10

 Glu Val Asp Pro Ile Gly His Leu Tyr
 1 5
35

 <210> 11
 <211> 9
 <212> PRT
40 <213> Homo sapiens

 <400> 11

 Phe Leu Trp Gly Pro Arg Ala Leu Val
45 1 5

 <210> 12
 <211> 10
50 <212> PRT
 <213> Homo sapiens

 <400> 412

55 Met Glu Val Asp Pro Ile Gly His Leu Tyr
 1 5 10

60 <210> 13
 <211> 9

<212> PRT
<213> Homo sapiens

<400> 13

5

Ala Ala Arg Ala Val Phe Leu Ala Leu
1 5

10

<210> 14
<211> 8
<212> PRT
<213> Homo sapiens

15

<400> 14

Tyr Arg Pro Arg Pro Arg Arg Tyr
1 5

20

<210> 15
<211> 10
<212> PRT
<213> Homo sapiens

25

<400> 15

Ser Pro Ser Ser Asn Arg Ile Arg Asn Thr
1 5 10

30

<210> 16
<211> 9
<212> PRT
<213> Homo sapiens

35

<400> 16

Val Leu Pro Asp Val Phe Ile Arg Cys
1 5

40

<210> 17
<211> 10
<212> PRT
<213> Homo sapiens

45

<400> 17

50

Val Leu Pro Asp Val Phe Ile Arg Cys Val
1 5 10

55

<210> 18
<211> 9
<212> PRT
<213> Homo sapiens

60

<400> 18

Glu Glu Lys Leu Ile Val Val Leu Phe
1 5

5 <210> 19
<211> 9
<212> PRT
<213> Homo sapiens

10 <400> 19

Glu Glu Lys Leu Ser Val Val Leu Phe
1 5

15 <210> 20
<211> 10
<212> PRT
<213> Homo sapiens

20 <400> 20

Ala Cys Asp Pro His Ser Gly His Phe Val
1 5 10

25 <210> 21
<211> 10
<212> PRT
30 <213> Homo sapiens

<400> 21

Ala Arg Asp Pro His Ser Gly His Phe Val
35 1 5 10

<210> 22
<211> 9
40 <212> PRT
<213> Homo sapiens

<400> 22

45 Ser Tyr Leu Asp Ser Gly Ile His Phe
1 5

50 <210> 23
<211> 9
<212> PRT
<213> Homo sapiens

<400> 23

55 Ser Tyr Leu Asp Ser Gly Ile His Ser
1 5

60 <210> 24

<211> 9
<212> PRT
<213> Homo sapiens

5 <400> 24

Met Leu Leu Ala Val Leu Tyr Cys Leu
1 5

10
<210> 25
<211> 9
<212> PRT
<213> Homo sapiens
15
<400> 25

Tyr Met Asn Gly Thr Met Ser Gln Val
1 5

20
<210> 26
<211> 9
<212> PRT
25 <213> Homo sapiens

<400> 26

30 Ala Phe Leu Pro Trp His Arg Leu Phe
1 5

<210> 27
<211> 9
35 <212> PRT
<213> Homo sapiens

<400> 27

40 Ser Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 28
<211> 9
45 <212> PRT
<213> Homo sapiens

<400> 28

50 Tyr Glu Ile Trp Arg Asp Ile Asp Phe
1 5

<210> 29
55 <211> 15
<212> PRT
<213> Homo sapiens

<400> 29
60

Gln Asn Ile Leu Leu Ser Asn Ala Pro Leu Gly Pro Gln Phe Pro
1 5 10 15

5 <210> 30
<211> 15
<212> PRT
<213> Homo sapiens

10 <400> 30

Asp Tyr Ser Tyr Leu Gln Asp Ser Asp Pro Asp Ser Phe Gln Asp
1 5 10 15

15 <210> 31
<211> 10
<212> PRT
<213> Homo sapiens

20 <400> 31

Glu Ala Ala Gly Ile Gly Ile Leu Thr Val
1 5 10

25 <210> 32
<211> 9
<212> PRT
<213> Homo sapiens

30 <400> 32

Ala Ala Gly Ile Gly Ile Leu Thr Val
35 1 5

<210> 33
<211> 9
<212> PRT
<213> Homo sapiens

40 <400> 33

Ile Leu Thr Val Ile Leu Gly Val Leu
45 1 5

<210> 34
<211> 9
<212> PRT
<213> Homo sapiens

50 <400> 34

Lys Thr Trp Gly Gln Tyr Trp Gln Val
55 1 5

<210> 35
<211> 9

60

<212> PRT
<213> Homo sapiens

<400> 35

5 Ile Thr Asp Gln Val Pro Phe Ser Val
1 5

10 <210> 36
<211> 9
<212> PRT
<213> Homo sapiens

15 <400> 36

Tyr Leu Glu Pro Gly Pro Val Thr Ala
1 5

20 <210> 37
<211> 10
<212> PRT
<213> Homo sapiens

25 <400> 37

Leu Leu Asp Gly Thr Ala Thr Leu Arg Leu
1 5 10

30 <210> 38
<211> 10
<212> PRT
<213> Homo sapiens

35 <400> 38

Val Leu Tyr Arg Tyr Gly Ser Phe Ser Val
1 5 10

40 <210> 39
<211> 9
<212> PRT
45 <213> Homo sapiens

<400> 39

50 Leu Tyr Val Asp Ser Leu Phe Phe Leu
1 5

<210> 40
<211> 12
55 <212> PRT
<213> Homo sapiens

<400> 40

60 Lys Ile Ser Gly Gly Pro Arg Ile Ser Tyr Pro Leu

1 5 10

5 <210> 41
<211> 9
<212> PRT
<213> Homo sapiens

10 <400> 41
Tyr Met Asp Gly Thr Met Ser Gln Val
1 5

15 <210> 42
<211> 11
<212> PRT
<213> Homo sapiens

20 <400> 42
Ser Leu Leu Met Trp Ile Thr Gln Cys Phe Leu
1 5 10

25 <210> 43
<211> 9
<212> PRT
<213> Homo sapiens

30 <400> 43
Ser Leu Leu Met Trp Ile Thr Gln Cys
1 5

35 <210> 44
<211> 9
<212> PRT
40 <213> Homo sapiens

<400> 44

45 Gln Leu Ser Leu Leu Met Trp Ile Thr
1 5

50 <210> 45
<211> 30
<212> DNA
<213> Homo sapiens

55 <400> 45
cgcggatccc ttctccagca atcagagcgc

30

60 <210> 46
<211> 36
<212> DNA
<213> Homo sapiens

<400> 46
 ccggaattct gaatccagta gattgacttc attgga 36
 5
 <210> 47
 <211> 32
 <212> DNA
 <213> Homo sapiens
 10
 <400> 47
 ccggaattca aaacaattca aggggagctg gg 32
 15
 <210> 48
 <211> 30
 <212> DNA
 <213> Homo sapiens
 20
 <400> 48
 ccggaattct gtacccgacc tccatcttca 30
 25
 <210> 49
 <211> 31
 <212> DNA
 <213> Homo sapiens
 30
 <400> 49
 ccggaattct gtgagccatg cagcccaa at g 31
 35
 <210> 50
 <211> 41
 <212> DNA
 <213> Homo sapiens
 40
 <400> 50
 atagtttagc ggccgctcac ttatagccac agaacctccc a 41
 45
 <210> 51
 <211> 16
 <212> PRT
 <213> Homo sapiens
 50
 <400> 51
 Asp Val Thr Phe Asn Ile Ile Cys Lys Lys Cys Gly Trp Asn Ile Lys
 1 5 10 15
 55
 <210> 52
 <211> 45
 <212> DNA
 <213> Homo sapiens
 60
 <400> 52
 gatgttacct tcaacatcat atgtaaaaaa tgtgggtgga atata 45

| | | |
|----|---|----|
| | <210> 53 | |
| | <211> 9 | |
| | <212> PRT | |
| | <213> Homo sapiens | |
| 5 | <400> 53 | |
| | Phe Asn Ile Ile Cys Lys Lys Cys Gly | |
| | 1 5 | |
| 10 | <210> 54 | |
| | <211> 12 | |
| | <212> PRT | |
| | <213> Homo sapiens | |
| 15 | <400> 54 | |
| | Asp Val Thr Phe Asn Ile Ile Cys Lys Lys Cys Gly | |
| | 1 5 10 | |
| 20 | <210> 55 | |
| | <211> 23 | |
| | <212> DNA | |
| | <213> Homo sapiens | |
| 25 | <400> 55 | |
| | agcaacatgg attgtcagct ctc | 23 |
| 30 | <210> 56 | |
| | <211> 22 | |
| | <212> DNA | |
| | <213> Homo sapiens | |
| 35 | <400> 56 | |
| | tggttggtgag tccaaactgt cg | 22 |
| 40 | <210> 57 | |
| | <211> 24 | |
| | <212> DNA | |
| | <213> Homo sapiens | |
| 45 | <400> 57 | |
| | cgcggatcca gcatggtgtg tctg | 24 |
| 50 | <210> 58 | |
| | <211> 27 | |
| | <212> DNA | |
| | <213> Homo sapiens | |
| 55 | <400> 58 | |
| | ggaattcctc agctaggaat cctggtg | 27 |
| 60 | <210> 59 | |
| | <211> 16 | |
| | <212> PRT | |
| | <213> Homo sapiens | |

<400> 59
Asn Ile Ile Cys Lys Lys Cys Gly Trp Asn Ile Lys Gln Cys Glu Pro
1 5 10 15

5

<210> 60
<211> 11
<212> PRT
<213> Homo sapiens

10

<400> 60
Asp Val Thr Phe Asn Ile Ile Cys Lys Lys Cys
1 5 10

15

<210> 61
<211> 12
<212> PRT
<213> Homo sapiens

20

<400> 61
Asp Val Thr Phe Asn Ile Ile Ser Lys Lys Cys Gly
1 5 10

25

<210> 62
<211> 12
<212> PRT
<213> Homo sapiens

30

<400> 62
Asp Val Thr Phe Asn Ile Ile Cys Lys Lys Ser Gly
1 5 10

35

<210> 63
<211> 12
<212> PRT
<213> Homo sapiens

40

<400> 63
Asp Val Thr Phe Asn Ile Ile Ser Lys Lys Ser Gly
1 5 10

45